DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT - AQUATIC RODENT DAMAGE MANAGEMENT IN NORTH CAROLINA

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS), Wildlife Services (WS) program responds to requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife. Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions are categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). To evaluate and determine if any potentially significant impacts to the human environment from WS' planned and proposed program would occur, an environmental assessment (EA) was prepared. The EA documents the need for aquatic rodent damage management (ARDM) in North Carolina and assessed potential impacts of various alternatives for responding to damage problems. The EA analyzes the potential environmental and social effects for resolving beaver, muskrat and nutria damage related to the protection of resources, and human health and safety on private and public lands in North Carolina. WS' proposed action is to implement an Integrated Wildlife Damage Management (IWDM) program on public and private lands in North Carolina. A Decision and Finding of No Significant Impact (FONSI) were signed on March 4, 2002 selecting the proposed action of implementing an IWDM program. Comments from the public involvement process were reviewed for substantial issues and alternatives which were considered in developing the EA and the 2002 Decision/FONSI.

Annual monitoring reports have been prepared and issued for WS' aquatic rodent damage management activities conducted during 2003, 2004 and 2005 to ensure WS' activities are within the scope of the EA (USDA 2003, USDA 2004, USDA 2005). Based on the information provided in those monitoring reports, WS' integrated aquatic rodent damage management activities were within the potential impact parameters analyzed in the EA and the 2002 Decision/FONSI remained valid. WS' activities will be summarized in this document for the reporting year 2001 through 2006.

The EA was prepared to: 1) facilitate planning and interagency coordination, 2) streamline program management, and 3) clearly communicate to the public the analysis of cumulative impacts. WS determined through the National Environmental Policy Act (NEPA) process that an Environmental Impact Statement was not required to conduct the current/proposed aquatic rodent damage management activities in North Carolina. The EA, as amended, ensured WS' actions complied with NEPA, with the Council on Environmental Quality (40 CFR 1500), and with APHIS NEPA implementing regulations (7 CFR 372). All aquatic rodent damage management activities are conducted consistent with: 1) the Endangered Species Act of 1973, 2) Executive Order (EO) 13186[1],

[1] Executive Order 13186 directs federal agencies to protect migratory birds and strengthen migratory bird conservation by identifying and implementing strategies that promote conservation and minimize the take of migratory birds through enhanced collaboration between WS and the USFWS, in coordination with state, tribal, and local governments. A National-level MOU between the USFWS and WS is being developed to facilitate the implementation of Executive Order 13186.

EO 12898[2], and EO 13045[3], 3) the Federal Insecticide, Fungicide, and Rodenticide Act, 4) the Clean Water Act, and 5) Federal, State and local laws, regulations and policies. This Decision/FONSI is based on the analysis in the 2002 EA, the 2002 Decision/FONSI, and the annual monitoring reports.

Agency Authorities and Compliance

WS is the Federal program authorized by law to reduce damage caused by wildlife (Act of 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, Public Law 100-102, Dec. 27, 1987. Stat. 1329-1331 (7 U.S.C. 426c). Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife. Wildlife damage management is recognized as an integral part of wildlife management (The Wildlife Society 1992). WS uses an Integrated Wildlife Damage Management (IWDM) approach, commonly known as Integrated Pest Management (WS Directive 2.105) in which a combination of methods may be used or recommended to reduce damage. WS' wildlife damage management is not based on punishing offending animals but as one means of reducing damage and is used as part of the WS' Decision Model (Slate et al. 1992, USDA 1997, WS Directive 2.201). The imminent threat of damage or loss of resources is often deemed sufficient for wildlife damage management actions to be initiated (U.S. District Court of Utah 1993). Resource management agencies and individuals have requested WS to conduct ARDM to protect human health and safety, agricultural and natural resources, property, and wildlife, including threatened and endangered (T&E) species in North Carolina. All WS' wildlife damage management activities are in compliance with relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act of 1973 and Clean Water Act.

Need for Action

Beaver are generally considered beneficial where their activities do not compete with human land use or human health and safety (Wade and Ramsey 1986). The opinions and attitudes of individuals, organizations, and communities vary greatly and are primarily influenced and formed by the benefits and/or damage directly experienced by each individual (Hill 1982). Woodward et al. (1976) found that 24% of landowners who reported beaver activity on their property indicated benefits to having beaver ponds on their land and also desired assistance with beaver pond management (Hill 1976, Lewis 1979, Woodward et al. 1985).

Along with the increase in benefits derived from beaver, there has also been an increase in detrimental impacts. In some cases, the detrimental impacts of beaver outweigh the benefits (Grasse and Putnam 1955, Woodward et al. 1985, Novak 1987). In the southeastern United States, thriving beaver populations have negatively impacted the economy, with the overwhelming magnitude of damage far surpassing pelt values. It is estimated that beaver cause $75 - 100 million dollars in economic losses annually in the United States, with total losses in the southeastern United States over the past 40 years

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[2] Executive Order 12898 promotes the fair treatment of people of all races, income levels and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies.

[3] Executive Order 13045 ensures the protection of children from environmental health and safety risks since children may suffer disproportionately from those risks.

estimated to be $4 billion (Novak 1987).

The most obvious, widespread and common damage caused by beaver is the long-term flooding and subsequent death of timber. Timber resources have the highest recorded damage caused by beaver (Hill 1976, Lewis 1979, Hill 1982, Woodward et al. 1985). Timber damage caused by beaver activity in southeastern states has been estimated at $2.2 million annually in Mississippi (Arner and Dubose 1982), $2.2 million in Alabama (Hill 1976), $45 million in Georgia (Godbee and Price 1975), and $14.5 million in Louisiana in 1993 (Fowler et al. 1994). In North Carolina, WS' cooperators have reported beaver, muskrats, and nutria are responsible for a minimum loss of $29 million since 2001 (Appendix A).

A description of conflicts and damage associated with aquatic rodents in North Carolina is provided in the EA (USDA 2002). The types of damage that resource owners and managers seek to alleviate include threats to human health and safety and losses of property resulting from flooding of timber and other agricultural lands, residential and commercial property, and roads; cutting and flooding of commercial and ornamental trees and tree plantations; failure of road beds, railroad beds, and pond dams due to impounded water and burrowing; and structural degradation of storm water ditches. Because of the magnitude and distribution of damage, there is a need to provide North Carolina landholders with an effective and affordable means of protecting their health, property and livelihood from damage caused by aquatic rodents.

Summary of WS' Aquatic Rodent Damage Management Activities from Fiscal Year 2001 – 2006

In a continuing effort to assist the public and effectively manage natural resources, the North Carolina Wildlife Services (NCWS) program, in cooperation with the NCWRC (North Carolina Wildlife Resources Commission) and several other state and private agencies, initiated the Beaver Management Assistance Program (BMAP) in 1992. This cooperative program has been successful in reducing or eliminating beaver damage from specific problem sites while at the same time preserving and enhancing all the benefits which have been historically and continue to be derived from beaver. Beaver management activities for the protection of human health and safety, natural resources, agriculture, and property are consistently conducted by WS in North Carolina.

Aquatic rodents cause millions of dollars in damage, distributed among hundreds of landholders, in North Carolina annually. From 2001 to 2006, the NCWS' program entered into 8,424 service agreements with private and public cooperators to provide aquatic rodent damage management on private and public lands in North Carolina (USDA-WS MIS 2007, unpublished data). These landholders also reported that from 2001 to 2006 they had lost a minimum of $29.1 million in resources to aquatic rodent damage (Table 1 in Appendix A). The three highest resources damaged were timber at $21,332,863, followed by roads and bridges at $3,254,674 and natural resources (trees, watershed, etc.) at $1,574,417. A single landowner in North Carolina lost $45,000 in timber to beaver activity (Loeb 1994). Other types of property damage caused by beaver include girdling and cutting of ornamental and shade trees; flooding of pastures, cropland, homes, yards, septic tanks, or other urban areas; damming of culverts and bridges causing flooding and erosion of roadways and railroad beds; undermining or weakening of pond dams, roadbeds and yards from burrowing; plugging

overflow pipes or spillways of ponds; interference with irrigation systems; drowning of livestock; feeding on crops; and gnawing on boat houses and docks (Grasse and Putnam 1955, Hill 1982, Miller 1983, Woodward 1983, Wade and Ramsey 1986, De Almeida 1987, Miller and Yarrow 1994).

Aquatic Rodent Damage Management Methods

Program activities and methods have not changed from those analyzed in the EA. A description of the methods used or recommended by WS for aquatic rodent damage management in North Carolina can be found in Chapter 3 and Appendix D of the EA (USDA 2002). Chapter 3 of the EA also discusses WS' efforts in the research and development of new methods, and the implementation of effective strategies to resolve and prevent wildlife damage.

Specific methods and a formal risk assessment of all mechanical devices used by the WS' program in North Carolina can be found in WS' programmatic Final Environmental Impact Statement (FEIS) (USDA 1997, Appendix J: 9 - 12). All lethal and non-lethal methods developed to date have limitations based on costs, logistics, or effectiveness.

Standard Operating Procedures

Mitigation measures are any features of an action that serve to prevent, reduce, or compensate for effects that otherwise might result from that action. As appropriate, mitigation measures are incorporated in WS' Standard Operating Procedures (SOPs) and used in the current WS' program, nationwide and in North Carolina to maximize humaneness and to minimize non-target take. Mitigation measures and SOPs are discussed in Chapter 3 of the EA (USDA 2002).

Alternatives That Were Fully Evaluated

The following five alternatives were developed by the Multi-agency Team to respond to the issues. Nine additional alternatives were considered but not analyzed in detail. A detailed discussion of the effects of the Alternatives on the issues is described in the EA; below is a summary of the Alternatives.

Alternative 1 - Fully Integrated Aquatic Rodent Damage Management for all Public and Private Land (No Action/Proposed Action). This alternative would incorporate an IWDM program utilizing any legal technique or method, used singly or in combination, to meet requester needs for resolving ARDM conflicts with beaver, muskrats and nutria. Aquatic rodents would be lethally removed under this alternative by WS, but not to the extent that statewide native wildlife populations would be negatively impacted. Cooperators requesting assistance would be provided with information regarding the use of effective non-lethal and lethal techniques. In many situations, the implementations of non-lethal methods are best implemented by landowner/manager and would be the responsibility of the requester to implement. This alternative would allow WS to respond to all requests and would meet the management objectives of this EA.

Alternative 2 - Only Lethal Aquatic Rodent Damage Management. Under this alternative, only

lethal direct control activities and recommendations would be provided by WS to resolve aquatic rodent damage caused by beaver, muskrat and nutria. Aquatic rodents would be lethally removed under this alternative by WS, but not to the extent that statewide native wildlife populations would be negatively impacted. Requests for information regarding non-lethal management approaches would be referred to NCWRC, local animal control agencies, or private businesses or organizations. Individuals or agencies might choose to implement WS' lethal recommendations, implement non-lethal methods or other methods not recommended by WS, contract for WS' direct control services, use contractual services of private businesses, use volunteer services of private organizations, or take no action. In some cases, control methods employed by others could be contrary to the intended use or in excess of what is necessary. This alternative would not allow WS to respond to all requests, would not meet the management objectives of this EA, and would leave some members of the public without a means to reduce aquatic rodent damage.

Alternative 3 - Non-lethal Aquatic Rodent Damage Management. Under this alternative, only non-lethal direct control activities and recommendations would be provided by WS to resolve aquatic rodent damage caused by beaver, muskrat and nutria. Requests for information regarding lethal management approaches would be referred to NCWRC, local animal control agencies, or private businesses or organizations. Individuals or agencies might choose to implement WS' non-lethal recommendations, implement lethal methods or other methods not recommended by WS, contract for WS' direct control services, use contractual services of private businesses, use volunteer services of private organizations, or take no action. In some cases, control methods employed by others could be contrary to the intended use or in excess of what is necessary. WS would not be involved in lethal control actions. However, persons receiving non-lethal assistance could still resort to lethal methods that were available to them including shooting and trapping. Effects of lethal control would be variable dependent upon actions taken by affected resource owners. This alternative would not allow WS to respond to all requests, would not meet the management objectives of this EA, and would leave some members of the public without a means to reduce aquatic rodent damage.

Alternative 4 - Technical Assistance Only. This alternative precludes any and all direct control activities by WS to resolve aquatic rodent damage caused by beaver, muskrat and nutria. Producers or any other entity directed at preventing or reducing aquatic rodent damage could conduct direct control activities in the absence of WS' involvement. However, if requested, affected producers would be provided with TA information only. Impacts of this alternative would be variable dependent upon actions taken by affected resource owners. This alternative would allow WS to respond to all requests with TA, but would not meet the management objectives of this EA and would leave some members of the public without a means to reduce aquatic rodent damage.

Alternative 5 - No NCWS Aquatic Rodent Damage Management in North Carolina. This alternative would result in no assistance from WS in resolving aquatic rodent damage caused by beaver, muskrat and nutria. WS would not provide technical assistance or operational damage management services. All requests for ARDM would be referred to the NCWRC, local animal control agencies, or private businesses or organizations. Assistance may or may not be available from any of these entities. Impacts of this alternative would be variable dependent upon actions taken by affected resource owners. This alternative would not allow WS to respond to any requests, would not

meet the management objectives of this EA, and would leave some members of the public without a means to reduce aquatic rodent damage.

Alternatives Considered but not Analyzed in Detail are the Following:

Eradication and Suppression

An eradication and suppression alternative would direct all NCWS' aquatic rodent damage management efforts toward total elimination or suppression of these species.

Eradication of beaver or muskrat in North Carolina is not supported by NCWS or NCWRC. This alternative will not be considered by NCWS in detail because:

X WS opposes eradication of any native wildlife species.
X NCWRC opposes eradication of any native North Carolina wildlife species.
X The eradication of a native species would be extremely difficult if not impossible to accomplish, and cost prohibitive.
X Eradication of native species is not acceptable to most members of the public.

Suppression would direct NCWS' program efforts toward managed reduction of aquatic rodent populations. To consider large-scale population suppression as a goal of the NCWS' program is not realistic, practical or allowable under present WS' policy.

Population stabilization through birth control

Under this alternative, aquatic rodent populations would be managed by administering contraceptives to limit reproduction. Contraceptive measures for mammals can be grouped into four categories: surgical sterilization, oral contraception, hormone implantation, and immuno-contraception (the use of contraceptive vaccines). These techniques would require that aquatic rodents receive either single, multiple, or possibly daily treatment to successfully prevent conception. An aquatic rodent contraceptive, chemosterilant or immuno-contraceptive, if delivered to a sufficient number of individuals, could temporarily suppress local breeding populations via natural mortality combined with reduced fecundity. However, treated aquatic rodents would continue to cause damage, and populations of dispersing aquatic rodents would probably be unaffected. Furthermore, at present, there are no chemical or biological contraceptive agents available or registered for aquatic rodents.

This alternative was not considered in detail because: (1) it would take a number of years of implementation before the aquatic rodent population would decline, and, therefore, damage would continue at the present unacceptable levels for a number of years; (2) surgical sterilization would have to be conducted by licensed veterinarians and would be extremely expensive; (3) it is difficult to effectively live trap or chemically capture the number of aquatic rodents that would need to be sterilized in order to effect an eventual decline in the population; and (4) no chemical or biological contraception agents for aquatic rodents have been approved for use by state and federal regulatory authorities.

The use of contraceptives is not realistic, at this point, since there are no effective and legal methods of delivering contraceptives to aquatic rodents.

Compensation for Wildlife Damage Losses

The compensation alternative would direct NCWS' program efforts and resources toward the verification of losses from aquatic rodents and to providing monetary compensation for these losses. Analysis of this alternative in USDA (1997) shows that it has many drawbacks:

- X Compensation would not be practical for public health and safety problems,
- X It would require large expenditures of money to investigate and validate all losses, and to determine and administer appropriate compensation,
- X Timely responses to all requests to assess and confirm losses would be difficult, and many losses could not be verified,
- X Compensation would give little incentive to limit losses through other management strategies,
- X Not all resource managers/owners would rely completely on a compensation program and unregulated lethal control would probably continue and escalate,
- X Neither Congress nor North Carolina has appropriated funds for a compensation program.

Bounties

Bounties or payment of funds for killing animals (bounties) suspected of causing economic losses is not supported by NCWS because:

- X Bounties are generally not effective in managing wildlife or reducing damage,
- X Circumstances surrounding take of animals is largely unregulated,
- X No process exists to prohibit taking of animals from outside the damage management area for compensation purposes, and
- X NCWS does not have the authority to establish a bounty program.

Relocation of Nuisance or Problem Aquatic Rodents

This alternative would direct NCWS to use relocation exclusively as a damage management technique.

Relocation of problem wildlife species is a technique that is sometimes used to alleviate wildlife damage problems. The success of a relocation effort, however, depends on the potential for the problem individuals to be captured efficiently and the existence of an appropriate relocation site (Nielsen 1988). Relocation may be appropriate in some situations when the species population is low, but aquatic rodents are abundant in much of the suitable habitat in North Carolina and relocation is not necessary for the maintenance of viable populations. Because beaver are abundant in North

Carolina, beaver relocated into suitable habitat are very likely to encounter other beaver with established territories. Beaver are highly territorial and the newly introduced beaver, which are disoriented and at a disadvantage, are often viciously attacked and sometimes killed from these encounters (McNeely 1995). The survival of relocated animals is generally very poor due to the stress of relocation, so that in many cases an animal is released only to suffer mortality in a new environment (Craven 1992). Courcelles and Nault (1983) found that 50% (n=10) of radio-collared, relocated beaver died, probably from stress or predation resulting from the relocation.

Relocated beaver may also disperse long distances from the release site (Novak 1987). Hibbard (1958) in North Dakota recorded an average dispersal distance by 17 relocated beaver to be about 9 miles and Denney (1952) in Colorado reported an average dispersal of 10.4 miles and a maximum dispersal of 30 miles for 26 transplanted beaver. Beaver relocated on streams and later recaptured (n=200) moved an average distance of 4.6 miles, and in lake and pothole relocations (n=272) moved an average of 2 miles (Knudsen and Hale 1965). Only 12% of beaver relocated on streams and 33% of beaver relocated in the lake and pothole areas remained at the release site (Knudsen and Hale 1965).

The relocation of aquatic rodents that are causing damage could result in damage problems at the release site or dispersal site. In this case, the original damage problem has simply been shifted from one property to another. If NCWS relocated the problem animal, NCWS could possibly be held liable for any subsequent damage caused by that animal.

Live-trapping and relocating aquatic rodents is biologically unsound and not cost-efficient (Wade and Ramsey 1986). The AVMA, the National Association of State Public Health Veterinarians, and the Council of State and Territorial Epidemiologists all oppose the relocation of mammals because of the risk of disease transmission, particularly for small mammals (Center for Disease Control 1990). Among animal advocacy groups there appears to be disagreement about relocating wildlife to alleviate damage. The People for the Ethical Treatment of Animals oppose relocation of problem beaver because they believe relocation is cruel (Redmon 1999, Redmon 2000). The Humane Society of the United States believes relocation is preferable to death, in some circumstances, but point out that relocation could be stressful and result in suffering or death (Bridgeland et al. 1997). The Humane Society of the United States openly advocates relocating muskrats to alleviate damage but is less clear about beaver (Bridgeland et al. 1991).

It is the policy of the NCWRC not to relocate beaver because of the unavailability of appropriate release sites, biological and humaneness concerns related to poor survivorship of relocated animals, competition with established colonies, the potential for transmission of disease between populations, and the high probability that damage problems would be transferred from one site to another through relocation (P. Sumner, NCWRC, 2007, pers. comm.). NCWS did not consider this option in detail because of these same concerns.

Live-Capture and Kill Techniques Only

Live-capture and kill techniques may be used as part of the IWDM approach to reduce aquatic rodent

damage. Snares, foothold traps, or other devices may be used to live-capture beaver. While these tools are effective and efficient for capturing aquatic rodents, the use of additional methods (e.g., conibear-type traps and shooting) would be necessary to reduce damage in a cost-effective manner.

Dam Removal or Water Control Structures Only

This alternative would direct NCWS to alleviate flooding damage by controlling the water levels without removing beaver. Dams would either be removed manually or with binary explosives. However, removing dams without removing the resident beaver is usually ineffective because beaver will quickly repair or replace the dam (McNeely 1995). Installing and maintaining water-level management devices or removing beaver dams on a daily or weekly basis may be cost prohibitive, and would not alleviate damage from gnawing or felling of trees.

Water-level management devices or pond levelers have been used for many years in many different states, with varying degrees of success. Various types of beaver pond levelers have been described (Arner 1964, Laramie and Knowles 1985, Lisle 1996, Roblee 1984) and installation of beaver pond levelers can be effective in reducing flooding in certain situations (Minn. Dept. Nat. Res. 1994, Miller and Yarrow 1994, Organ et al. 1996). However, a survey of Clemson Beaver Pond Levelers installed by WS in Mississippi revealed that only about 45% of levelers were successful (Nolte et al. 2000). Another study reported water-level management devices to be effective in only about 5% of flooding situations (Anonymous 1999). This is primarily because these structures were blocked by debris or siltation, and because the beaver often built a new dam nearby (McNeely 1995). If beaver are not removed, they may build dams upstream and downstream or block the device with mud and debris, rendering this method ineffective. Removal or reduction of the local beaver population, along with post-installation maintenance of the water-level management device itself, is usually required for this method to be effective (Nolte et al. 2000; E. Butler, USDA/APHIS/ WS, 2000, pers. comm.; B. Sloan, USDA/APHIS/WS, 2000, pers. comm.).

Water-level management devices are most effective on wetlands lacking in-stream flow (B. Sloan, USDA/APHIS/WS, 2000, pers. comm.), but may be ineffective in beaver ponds in broad, low-lying areas (Organ et al. 1996). They may not be appropriate in streams or ditches with continuous flow because the volume of water is too great for the device to handle, and debris is continuously carried to the site. Also, water-level management devices may not be effective during periods of unusually high rainfall or increased water flow because the device cannot handle the increased volume of water (Anonymous 1999, Wood et al. 1994).

The use of water-level management devices may require frequent maintenance, depending on the type of device used. Continued maintenance is necessary for the device to remain operational because stream flow, leaf fall, floods, and beaver activity will continuously bring debris to the water control device. This maintenance of water control devices can be expensive. The Maine WS' program estimated annual maintenance costs at about $350 per water-level management device, in addition to a cost of about $250 - $300 for construction and installation (E. Butler, USDA/APHIS/WS, 2000, pers. comm.). There may also be an annual cost to remove or reduce beaver populations to keep the devices operational (B. Sloan, USDA/APHIS/WS, 2000, pers. comm.). NCWS spent approximately

$1000 to $1200 per device to install water-level management devices in North Carolina.

The Beaver Deceiver is a relatively new water-level management device that attempts to quiet, calm, and deepen the water around culverts (to reduce the attractiveness to beaver) and exclude beaver from a wide area around the upstream opening of the culvert (Lisle 1996). However, the effectiveness of this method is theoretical and has not been evaluated. Recreational fur trapping is an integral part of and justification for using beaver deceivers. Fur trapping keeps beaver populations at acceptable levels by minimizing flooding and road damage (Lisle 1996). Preservation of the fur resource for recreational trapping is the benefit of using beaver deceivers (Lisle 1996).

NCWS would use water-level management devices as part of an integrated beaver management program at appropriate sites. However, the use of only water-level management devices would be insufficient to manage beaver damage throughout North Carolina. The Maine WS' program installed over 160 water-level management devices in 1998. The primary benefit of the use of these devices in Maine is to minimize flooding damage while leaving beavers for fur trappers to remove during the regulated trapping season each year (E. Butler, USDA/APHIS/WS, 2000, pers. comm.). In Mississippi, the WS program commonly installs water-level management devices at sites where the landowner intends to hunt ducks or lease duck hunting rights on his land (B. Sloan, USDA/APHIS/WS, 2000, pers. comm.). Because there are few fur trappers in Mississippi, it is generally necessary to reduce beaver numbers annually at these sites to maintain the effectiveness of the devices (B. Sloan, USDA/APHIS/ WS, 2000, pers. comm.). Thus, in both Maine and Mississippi, the use of water-level management devices is supplemented by the continual removal of beaver from the site and an additional benefit is received which helps to justify the expense (i.e. reserving beaver for the fur harvest, providing duck hunting sites). Also, the construction, installation, and maintenance costs of water control devices in Maine and Mississippi are funded, in part, by sources such as state wildlife agencies, county governments, USFWS, or private organizations (E. Butler, USDA/APHIS/WS, 2000, pers. comm., B. Sloan, USDA/APHIS/WS, 2000, pers. comm.). Without such financial assistance and the existence of additional benefits, water-level management devices alone would generally be ineffective to reduce or prevent damage.

No Damage Management Until Damage Reaches a Certain Threshold

Some individuals may believe that NCWS should not conduct aquatic rodent damage management until economic losses become unacceptable or losses reach some predetermined threshold level. Although some losses can be expected and tolerated by most people and government entities, NCWS has the legal authority to respond to requests for wildlife damage management (Act of March 2, 1931 (46 Stat. 1468; 7 U.S.C. 426-426b) as amended, and the Act of December 22, 1987 (101 Stat. 1329-331, 7 U.S.C. 426c)). People who request assistance from NCWS have decided that the Wildlife Acceptance Capacity has been reached, while those who object frequently have no personal loss or liability from the presence of aquatic rodents NCWS uses the Decision Model (Slate et al. 1992) discussed in section 3.1.4 to determine appropriate strategies, and it is program policy to aid each requester to minimize losses. If damage management efforts are not initiated soon after a damage problem is detected, damages may escalate to excessive levels, or in the case of human health and safety, people may be injured or killed before the problem is resolved. Furthermore, if not given

assistance, resource managers may resort to the use of illegal or unsafe methods (Walters 1996). In the Southern Utah Wilderness Alliance, et al. vs. Hugh Thompson, Forest Supervisor for the Dixie National Forest, et al., the United States District Court of Utah denied plaintiffs' motion for preliminary injunction. In part, the court found that a forest supervisor need only show that damage is probable to establish a need for wildlife damage management (U.S. District Court of Utah 1993).

Technical Assistance and Non-lethal Aquatic Rodent Damage Management with Lethal Management as a Last Resort

This alternative was not evaluated in this EA because it would restrict NCWS and others to conducting non-lethal damage management before using lethal damage management. Verification of the methods used would be the responsibility of the NCWS. No standards exist to determine the diligence in applying non-lethal methods, nor are there standards to determine how many non-lethal methods or applications are necessary before the initiation of lethal damage management. Thus, only the presence or absence of non-lethal methods can be evaluated.

Conversely, under this alternative, technical assistance and operational non-lethal and lethal damage management are provided in the context of an IWDM approach to most efficiently and effectively resolve damage problems, and the WS' Decision Model (Slate et al. 1992) is used to help determine the best approach for resolving wildlife damage. The current NCWS program recognizes the importance of non-lethal methods as an important dimension of IWDM, and non-lethal methods are considered or used first in each damage management strategy, if applicable, as discussed above. These non-lethal methods are promoted through program directives, literature and in personal consultations with affected resource owners. Protection of resources is NCWS' objective, and NCWS is available to all who request assistance. Technical assistance and non-lethal information will continue to be provided by NCWS to anyone requesting that information.

The Technical Assistance and Non-lethal Aquatic Rodent Damage Management with Lethal Management as a Last Resort alternative does not allow for a timely full range of IWDM techniques to resolve wildlife damage problems and may compromise damage resolution in some cases (i.e., crop flooding, flooded roads, road beds, or human health and safety). In addition, considerations of wildlife needs, including T&E Species and Species of Special Concern, are not included in this alternative.

Aquatic rodents play an important ecological role, creating valuable wetlands and wildlife habitat, as described in Section 1.2.1 and 1.2.3. NCWS works to educate the public about wildlife benefits as well as about wildlife damage management options. Education is an important part of NCWS' program because NCWS believes wildlife damage management is about finding balance or co-existence between the needs of people and needs of wildlife (USDA 1997). As requested, NCWS distributes informational leaflets and conducts demonstrations and presentations for property owners sustaining damage and other interested parties. Materials distributed and programs included information about the biology, ecology, legal status and benefits provided by aquatic rodents as well as non-lethal and lethal damage management methods to reduce damage.

Major Issues

The EA describes the alternatives considered and evaluated using the identified issues. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25).

The following five issues were analyzed in detail in the EA:

1. Effects on aquatic rodent populations
2. Effects on wetland habitats, plants, and other wildlife species, including T&E species
3. Effects on human and pet health and safety
4. Impacts to stakeholders, including aesthetics
5. Humaneness

The following is a brief summary of potential impacts for each of the major issues analyzed in the EA.

1. Effects on aquatic rodent populations

Program activities and their potential impacts on beaver, muskrat, and nutria populations have not changed from those analyzed in the EA. Analysis of this issue is limited to aquatic rodents killed during WS' damage management activities. The analysis for magnitude of impact generally follows the process described in Chapter 4 of USDA (1997). Magnitude is described in USDA (1997) as ". . . *a measure of the number of animals killed in relation to their abundance*." Magnitude may be determined either quantitatively or qualitatively. Quantitative determinations are based on population estimates, allowable harvest levels, and actual harvest data. Qualitative determinations are based on population trends and harvest data when available. Generally, WS only conducts damage management on species whose population densities are high and usually only after they have caused damage. WS' take is monitored by comparing numbers of animals killed with overall populations or trends in populations to assure the magnitude of take is maintained below the level that would cause significant adverse impacts to the viability of native species populations (USDA 1997).

The EA predicted that WS' aquatic rodent damage management activities in North Carolina would have no cumulative or detrimental impacts on beaver, muskrat, and nutria populations in North Carolina. WS' lethal take of beaver, muskrat, and nutria remains within the level of lethal take analyzed in the EA. The following is a population impact analysis for the three target species of aquatic rodents affected by WS' activities in North Carolina.

In the EA, WS concluded that the cumulative impact of WS' lethal take of beaver on the North Carolina beaver population during Fiscal Year (FY) 1993 through FY 2000 was of low magnitude. WS also predicted that harvest levels would remain similar in the future and that cumulative impacts of all known sources of human induced mortality would continue to be minimal. The NCWRC concurred with these conclusions.

Aquatic rodents (beaver, muskrat, and nutria) killed by NCWS, private trappers, and Wildlife Damage Control Agents (WDCA) by federal fiscal year (Oct.-Sept.) FY 2000 through the first ten months of FY 2006 (October 1, 2005 – July 31, 2006) is presented in the tables below. The information

provided in this table supports the conclusions of the beaver population impact analysis provided in the EA. For example, during FY 2005 and the first ten months of FY 2006 (October 1, 2005 – July 31, 2006) NCWS' personnel lethally removed 6,565 and 5,657 beaver, respectively. Private harvest of beaver as reported by the NCWRC (estimated by the number of pelts reported sold) during FY 2005 was 13,035 beaver. During FY 2005 and the first 10 months of FY 2006, WDCAs reported taking 90 beaver and 316 beaver, respectively (D. Barnes, NCWRC, 2007, pers. comm.).

Table 1. Numbers of beaver taken by the NCWS' aquatic rodent damage management program, private trappers, and Wildlife Damage Control Agents (WDCA) by federal fiscal year (Oct.-Sept.) FY 2000 through the first ten months of FY 2006 (October 1, 2005 – July 31, 2006).

	2000	2001	2002	2003	2004	2005	2006
NCWS*	5,236	5,479	4,744	5,215	5,154	6,565	5,657
Private**	520	1,576	2,753	7,209	11,531	13,035	13,097
WDCA**	52	43	277	193	178	90	316***
Total	5,808	7,098	7,774	12,617	16,863	19,690	19,070

* Data from WS MIS, unpublished data, FY 2006. ** Data provided by Perry Sumner and Daron Barnes of the NCWRC, 2007. *** FY2006 numbers for WDCA's represent only the first 10 months.

The following is a summary of the number of aquatic rodents taken by the NCWS' aquatic rodent damage management program, private trappers, and Wildlife Damage Control Agents (WDCA) by federal fiscal year (Oct.-Sept.) FY 2000 through the first ten months of FY 2006 (October 1, 2005 – July 31, 2006).

WS' FEIS (USDA 1997) determined that beaver populations can withstand an annual harvest rate of up to 30% without declining. The cumulative take of beavers during FY 2005 and the first ten months of FY 2006, including private harvest, NCWS' damage management activities, and WDCA activities are within this sustainable harvest level. Using the conservative statewide population estimate of 60,000 beaver and the more probable statewide population estimate of 480,000 beaver, the cumulative lethal take from all known sources of human induced mortality (including WS' lethal take) in FY 2005 is 32.8% and .041% of the estimated statewide populations, respectively. As predicted in the EA, cumulative take appears to have remained beneath the level that would begin to cause a decline in the statewide beaver population, according to the more probable statewide estimate for beaver of 480,000. The cumulative impact on the beaver population thus has remained of low magnitude.

In the EA, WS concluded that the cumulative impact of WS' lethal take of muskrat on the North Carolina muskrat population during FY 1993 through FY 2000 was negligible. WS also predicted that harvest levels would remain similar in the future and that cumulative impacts of all known sources of human induced mortality would continue to be minimal. The NCWRC concurred with these conclusions.

The numbers of muskrats killed by WS and others from FY 2000 through FY 2006 (FY 2006 contains data from October 2005-July 2006) are presented in Table 2. The information provided in this Table supports the conclusions of the muskrat population impact analysis provided in the EA.

Table 2. Numbers of muskrat taken by the NCWS' aquatic rodent damage management program, private trappers, and Wildlife Damage Control Agents (WDCA) by federal fiscal year (Oct.-Sept.) FY 2000 through the first ten months of FY 2006 (October 1, 2005 – July 31, 2006).

	2000	2001	2002	2003	2004	2005	2006
NCWS*	97	74	108	54	74	158	97
Private**	445	957	1,212	3,347	3,972	6,359	6,440
WDCA**	142	59	137	116	76	92	208***
Total	684	1,090	1,457	3,517	4,122	6,609	6,745

* Data from WS' MIS, unpublished data, FY2006. ** Data provided by Perry Sumner and Daron Barnes of the NCWRC, 2007. *** FY2006 numbers for WDCA's represent only the first 10 months.

During FY 2005 and the first ten months of FY 2006 (October 1, 2005 – July 31, 2006), NCWS' personnel lethally removed 158 and 97 muskrats, respectively. Private harvest of muskrat as reported by the NCWRC (estimated by the number of pelts reported sold) during FY 2005 was 6,359 muskrats. During FY 2005 and the first 10 months of FY 2006, WDCAs reported taking 92 muskrats and 208 muskrats, respectively (D. Barnes, NCWRC, 2007 pers. comm.).

In the EA, it was determined that the North Carolina muskrat population could sustain a harvest totaling more than 144,000 muskrats per year. Clearly, mortality as a result of fur harvest or damage management, including WS' ARDM activities, continues to have a negligible impact on the muskrat population in North Carolina. As predicted in the EA, cumulative take appears to have remained beneath the level that would begin to cause a decline in the statewide muskrat population.

In the EA, WS concluded that the cumulative impact of WS' lethal take of nutria on the North Carolina nutria population during FY 1993 through FY 2000 was negligible. WS also predicted that harvest levels would remain similar in the future and that cumulative impacts of all known sources of human induced mortality would continue to be minimal. The NCWRC concurred with these conclusions.

The numbers of nutria killed by WS and others from FY 2000 through FY 2006 (FY 2006 contains data from October 2005-July 2006) are presented in Table 3. The information provided in this Table supports the conclusions of the nutria population impact analysis provided in the EA.

Table 3. Numbers of nutria taken by the NCWS' aquatic rodent damage management program, private trappers, and Wildlife Damage Control Agents (WDCA) by federal fiscal year (Oct.-Sept.) FY 2000 through the first ten months of FY 2006 (October 1, 2005 – July 31, 2006).

	2000	2001	2002	2003	2004	2005	2006
NCWS*	134	181	79	144	186	187	424
Private**	0	0	0	914	1,090	1,867	3,115
WDCA**	4	0	1	5	8	41	12
Total	138	181	80	1,063	1,284	2,054	3,539

* Data from WS' MIS, unpublished data, FY2006. ** Data provided by Perry Sumner and Daron Barnes of the NCWRC, 2007.

During FY 2005 and the first ten months of FY 2006 (October 1, 2005 – July, 31 2006), NCWS'

personnel lethally removed 187 and 424 nutria, respectively. Private harvest of nutria during FY 2005 was 1,867 nutria. During FY 2005 and the first 10 months of FY 2006, WDCAs reported taking 41 nutria and 12 nutria, respectively (D. Barnes, NCWRC, 2007 pers. comm.).

In the EA, a conservative statewide nutria population was estimated at 116,000 individuals. Clearly, mortality as a result of fur harvest or damage management, including WS' ARDM activities, continues to have a negligible impact on the nutria population in North Carolina. As predicted in the EA, cumulative take appears to have remained beneath the level that would begin to cause a decline in the statewide nutria population.

The EA concluded that an IWDM approach to aquatic rodent damage management has the greatest potential of successfully reducing aquatic rodent damage and conflicts. It is reasonable to assume that the methods used by WS and their application have been effective. The methods are also highly selective for the target species. Conflicts with aquatic rodents were reduced at each location that WS provided direct management assistance. Technical assistance was provided in a timely manner to all requestors. Potential impacts on the effectiveness of wildlife damage management have not changed from those analyzed in the EA. Impacts of the program on this issue are expected to remain insignificant.

2. Effects on wetland habitats, plants and other wildlife species, including T&E species

Program activities and their potential impacts on wetland habitats, plants, and other wildlife species have not changed from those analyzed in the EA. The effects of WS' ARDM activities on this issue are expected to remain insignificant.

Non-target Species - In the EA, WS concluded that ARDM activities are not likely to have any adverse effect on populations of non-target species. The NCWRC concurred with this conclusion. The number of non-target animals killed by WS from FY 2001 through FY 2006 (FY 2006 contains data from October 2005-July 2006) are presented in Table 4. The information provided in table 4 supports the conclusions provided in the EA.

Table 4. Number of non-target animals killed/captured and released by NCWS as a result of aquatic rodent damage management activities in FY 2001, FY 2002, FY 2003, FY 2004, FY 2005, and the first ten months of FY 2006 (October 1, 2005 – July 31, 2006).

Species	FY 2001 (k/r)*	FY 2002 (k/r)	FY 2003 (k/r)	FY 2004 (k/r)	FY 2005 (k/r)	FY 2006 (k/r)	TOTAL (k/r)
River Otter	12/0	18/1	28/0	13/0	15/1	17/1	103/3
Raccoon	4/0	3/0	2/0	8/0	2/0**	15/1	34/1
Turtles	39/33	39/47	18/52	60/53	28/18	99/105	283/308
Eastern Cottontail	0/0	0/0	1/0	0/0	0/0	0/0	1/0
Bobcat	0/0	0/0	1/0	2/0	0/0	1/0	4/0
Coyote	0/0	0/0	2/0	0/0	0/0	0/0	2/0
Wood rat	0/0	0/0	1/0	0/0	4/3	0/0	5/3

Mallard	**0/0**	**0/0**	**0/0**	**1/0**	**0/0**	**0/0**	**1/0**
Virginia Opossum	**0/0**	**0/0**	**0/0**	**0/0**	**0/0**	**1/8**	**1/8**
Muskrat	**0/0**	**0/0**	**0/0**	**2/0**	**1/0**	**2/0**	**5/0**
American Alligator	**0/0**	**0/0**	**0/0**	**0/1**	**0/0**	**0/1**	**0/2**
Largemouth Bass	**0/0**	**0/0**	**0/0**	**0/0**	**1/0**	**0/0**	**1/0**
Wood duck	**0/0**	**0/0**	**0/0**	**0/0**	**0/0**	**1/0**	**1/0**

* K/r = killed/released

* *FY 2005 was the initial year in which USDA-WS-NC utilized MIS 2000 for data collection. At the time of this report data for the species indicated was only available from 4/01/05 through the end of the fiscal year. Data previous to 4/01/05 was unavailable.

Many of the non-target animals captured by NCWS during aquatic rodent damage management, including all American alligators and over half of all turtles, are released unharmed. For each of the species listed above, not including ducks, raccoon, river otter, and turtles, the total number of animals killed for the six year period of FY 2001 to FY 2006 was nineteen. For turtles, ducks, raccoons, and river otters it was only 283 (an average of 47 per year), 2 (an average of .33 per year), 34 (an average of 5.6 per year) and 103 (an average of 17.2 per year), respectively.

Non-target wildlife species, including turtles, river otters, raccoons, ducks, and American alligators (as noted in Table 4), may occasionally be taken in traps or snares used for aquatic rodent damage management. However, NCWS' employees receive extensive training to avoid catching non-target animals and use expertise in trap modification, adjustment, and placement, the use of appropriate trap types and sizes, and lure type and placement to minimize non-target takes.

A river otter population impact analysis was included in the EA. Based on this analysis, it was concluded that the small number of otter lethally removed as a result of NCWS' ARDM activities was not likely to adversely affect the North Carolina river otter population. The NCWRC concurred with this conclusion. Numbers of river otter killed by WS and others in North Carolina from FY 1996 through the first half of FY 2006 (October 1, 2005 – July 31, 2006) are presented in Table 5. The information provided in this Table supports the conclusions of the river otter population impact analysis provided in the EA.

Table 5. Numbers of river otter taken by the NCWS' aquatic rodent damage management program, private trappers, and Wildlife Damage Control Agents (WDCA) by federal fiscal year (Oct.-Sept.) FY 1996 through the first ten months of FY 2006 (October 1, 2005 – July 31, 2006). Average NCWS take given in the previous EA for the years 1993-2000 was 41. Since that time the average is 19.

	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
NCWS*	83	55	53	51	11	12	19	35	13	15	17
Private**	1729	933	1149	1054	1944	2137	2536	2593	3202	3661	N/A
WDCA**	4	6	0	0	0	2	5	0	0	3	1
Total	**1816**	**994**	**1202**	**1105**	**1955**	**2151**	**2560**	**2608**	**3215**	**3679**	**N/A**

* Data from WS' MIS, unpublished data, FY2006. ** Data provided by Perry Sumner and Daron Barnes of the NCWRC, 2007.

During FY 2005 and the first ten months of FY 2006 (October 1, 2005 – July 31, 2006), NCWS

lethally removed 15 and 17 river otters, respectively. Private harvest of river otter as reported by the NCWRC (estimated by the number of otter tags sold) during FY 2005 was 3,661 river otter (P. Sumner, NCWRC, 2007, pers. com.). During FY 2005 and the first 10 months of FY 2006, WDCAs reported taking 3 otter and 1 otter, respectively (D. Barnes, NCWRC, 2007, pers. comm.).

The number of river otter killed by NCWS during FY 2005 represents only .004% of the total number of otter taken. In addition, using the conservative statewide population estimate of 3,100 river otter and the more probable statewide population estimate of 19,048 otters, WS' lethal take of river otters in FY 2005 is .005% and .0007% of the estimated statewide population, respectively. It is highly unlikely that the small number of otter taken by NCWS has adversely impacted the statewide river otter population. It is therefore concluded, that the effect of the NCWS' aquatic rodent damage management program on the river otter population in North Carolina has remained negligible.

NCWS' employees have the backing of a nationwide group of research and development scientists whose sole mission is to develop improved methods for dealing with wildlife damage problems. NCWS often participates in research projects to improve the selectivity and humaneness of traps while striving to bring new findings and products into practical use.

3. Effects on human and pet health and safety

The activities conducted by WS in North Carolina have not resulted in any injuries or illnesses to any members of the public or the WS' program. WS' program activities had a positive impact on those projects that reduced the risks of potential injury, illness and loss of human life from injurious mammal species.

Program activities and methods, and their potential impacts on human health and safety have not changed from those analyzed in the EA. Impacts of the program on this issue are expected to remain insignificant.

4. Impacts to stakeholders, including aesthetics

The EA concluded the effects on aesthetics would be variable, depending on the damage situation, stakeholder's values towards wildlife, and their compassion for those who are experiencing damage from aquatic rodents. Overall, however, impacts would be insignificant. The ability to view and enjoy the aesthetic value of beaver, muskrats, or nutria at a particular site would be somewhat limited if the animals were removed. However, new beaver, muskrats, or nutria would most likely use the site in the future, although the length of time until they arrive is variable, depending on the site, time of year, and population densities in the surrounding areas. The opportunity to view beaver, muskrat, and nutria is available if a person makes the effort to visit sites outside of the damage management area. Program activities and methods and their potential impacts to stakeholders and aesthetics have not changed from those analyzed in the EA.

5. Humaneness

WS' personnel are experienced and professional in their use of management methods, and methods

are applied as humanely as possible. NCWS utilizes the findings and guidelines suggested by the International Association of Fish and Wildlife Agencies (IAFWA) to conduct their management practices so that target species may be removed with the most effective and humane practices while minimizing the impact on non-target species and habitat as much as possible. Program activities and their potential impacts on humaneness and animal welfare have not changed from those analyzed in the EA and are expected to remain insignificant.

Cumulative and Unavoidable Impacts

Cumulative and unavoidable impacts are discussed in relationship to each wildlife species and environmental impacts in the EA. This EA recognizes that the total annual removal of individual animals from wildlife populations by all causes is the cumulative mortality. Analysis of the NCWS' take from 1993 to 2000 and from 2001 to 2006, in combination with other mortality, indicates that cumulative impacts are not adversely affecting the viability of aquatic rodent populations or non-target species. Research and consultation with the U.S. Fish and Wildlife Service (USFWS) indicate that the NCWS' program will not result in any adverse cumulative impacts to T&E species (NCWS 1996; Letter from USFWS to NCWS October 1996; NCWS 1999; Letter from USFWS to NCWS September 1999, E-mail correspondence between USFWS and NCWS July 12 & 13, 2001.), and aquatic rodent damage management activities do not jeopardize public health and safety.

Program activities and their potential impacts on non-target wildlife species, including T&E species have not changed from those analyzed in the EA. Considering the number of non-target animals taken by NCWS during aquatic rodent damage management activities, it is not likely that these activities would have any adverse effect on populations of non-target species. NCWRC concurs with this conclusion (P. Sumner, NCWRC, 2007, pers. com.).

Relationship of this Environmental Assessment to Other Environmental Documents

ADC Programmatic Environmental Impact Statement.

WS conducted a NEPA process and developed a FEIS on the national APHIS/WS program (USDA 1997). The FEIS contains detailed discussions of potential environmental impacts from various wildlife damage management methods. The EA is tiered to the WS' FEIS (USDA 1997). Pertinent information available in the FEIS has been incorporated by reference into the EA and this Decision/FONSI. The FEIS may be obtained by contacting: USDA APHIS WS Operational Support Staff, 4700 River Rd., Unit 87, Riverdale, MD 20737-1234.

Site Specificity

This EA analyzes the potential impacts of aquatic rodent damage management activities on all private and public lands in North Carolina under Cooperative Service Agreements. It also addresses the impacts of aquatic rodent damage management on areas where additional agreements may be signed in the future. Because the proposed action is to reduce or eliminate damage and the program's goals and directives are to provide services when requested, within the constraints of available funding and workforce, it is conceivable that additional wildlife damage management efforts could occur. Thus,

this EA anticipates this potential expansion and analyzes the impacts of such efforts. This EA emphasizes major issues as they relate to specific areas whenever possible, however, many issues apply wherever aquatic rodent damage and resulting management occurs, and are treated as such. The standard WS' Decision Model (Slate et al. 1992) is the site-specific procedure for individual actions conducted by NCWS in North Carolina (see Chapter 3 for a description of the Decision Model and its application).

The analyses in the EA are intended to apply to any action that may occur *in any locale* and at *any time* within the state of North Carolina. In this way, APHIS-WS believes it meets the intent of NEPA with regard to site-specific analysis and that this is the only practical way for WS to comply with NEPA and still be able to accomplish its mission.

Consistency

The analyses in the EA demonstrate that Alternative 1: 1) best addresses the issues identified in the EA, 2) provides safeguards for public health and safety, 3) provides WS the best opportunity to reduce damage while providing low impacts on non-target species, 4) balances the economic effects to agricultural and natural resources, and property, and 5) allows WS to meet its obligations to government agencies or entities.

Monitoring

The North Carolina WS' program will annually provide to the North Carolina Wildlife Resources Commission (NCWRC) the WS lethal take of target and non-target animals to help insure the total statewide harvest (WS and other take) does not impact the viability of target and non target wildlife species. In addition, the EA will be reviewed each year to ensure that it and the analysis are sufficient.

Public Involvement

Issues related to the proposed action were initially developed by an interdisciplinary team involving the NCWS, NCWRC, NCDA, NCDOT, NCDFR, NCCES, and USACE. This Multi-agency team refined the issues and identified preliminary alternatives. The pre-decisional EA was prepared and released to the public for a 30-day comment period by a legal notice in The News and Observer, Roanoke-Chowan Co., News Herald & Gates County Index , Winston-Salem Journal, The Charlotte Observer, The Greensboro News & Record, Beaufort Hyde News, New Bern Sun Journal, The Fayetteville Observer, Asheville Citizen Times, and The Daily Advance. The pre-decisional EA was also mailed directly to agencies, organizations, and individuals with probable interest in the proposed program. A total of twenty comment letters were received from the public after review of the pre-decisional EA. All comments were analyzed to identify substantial new issues, alternatives, or to redirect the program. All letters and responses are maintained in the administrative file located at the North Carolina Wildlife Services Office, 6213-E Angus Drive, Raleigh, North Carolina 27617.

Decision Rationale

The rationale for my decision is based on several considerations. This decision takes into account public comments, social/political and economic concerns, public health and safety and the best available science. The foremost considerations are that: 1) aquatic rodent damage management will only be conducted by WS at the request of landowners/managers, 2) management actions are consistent with applicable laws, regulations, policies and orders, and 3) no adverse impacts to the environment were identified in the analysis. As a part of this Decision, the NCWS' program will continue to provide effective and practical technical assistance and direct management techniques that reduce damage.

Finding of No Significant Impact

Based on a review of information available since the completion of the 2002 EA, the 2002 Decision/FONSI, and the analyses provided in this Monitoring Report, there continues to be no indications that WS' aquatic rodent damage management activities in North Carolina are having a significant impact, individually or cumulatively, on the quality of the human environment. I agree with this conclusion and therefore, find that an Environmental Impact Statement should not be prepared. This determination is based on the following factors:

1. Beaver, muskrat and nutria damage management, as conducted by WS in North Carolina, is not regional or national in scope.

2. The proposed action would pose minimal risk to public health and safety. Risks to the public from WS' methods were determined to be low in a formal risk assessment (USDA 1997, Appendix P).

3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected. Built-in mitigation measures that are part of WS' standard operating procedures and adherence to laws and regulations will further ensure that WS' activities do not harm the environment.

4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to wildlife damage management, this action is not highly controversial in terms of size, nature, or effect.

5. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed damage management program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks.

6. The proposed action would not establish a precedent for any future action with significant effects.

7. No significant cumulative effects were identified through this assessment. The number of

beaver, muskrat and nutria killed by WS, when added to the total known other take of both species, falls well within allowable harvest levels. The EA discussed cumulative effects of WS' activities on target and non-target species populations and concluded that such impacts were not significant for this or other anticipated actions to be implemented or planned within the State.

8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources.

9. An informal consultation with the USFWS confirmed that the proposed action would not likely adversely affect any federally listed T&E species. The proposed project would not adversely affect North Carolina State listed threatened or endangered species.

10. The proposed action would be in compliance with all federal, state, and local laws imposed for the protection of the environment.

Decision

I have carefully reviewed the EA, the 2002 Decision/FONSI, input resulting from the 2002 public involvement process, and this Decision/FONSI. I believe that the issues identified in the EA are best addressed by selecting Alternative 1 (Fully Integrated Aquatic Rodent Damage Management for all Public and Private Land (No Action/Proposed Action)) and applying the associated mitigation measures discussed in Chapter 3 of the EA. Alternative 1 is selected because (1) it offers the greatest chance at maximizing effectiveness and benefits to resource owners and managers while minimizing cumulative impacts on the quality of the human environment that might result from the program's effect on target and non-target species populations; (2) it presents the greatest chance of maximizing net benefits while minimizing adverse impacts to public health and safety; and, (3) it offers a balanced approach to the issues of humaneness and aesthetics when all facets of these issues are considered. This Decision/FONSI will take effect 30 days after publication of a Legal Notice making the EA, the 2002 Decision/FONSI, and this Decision/FONSI available to the public for review and comment. New issues or alternatives raised after publication of public notices will be fully considered to determine whether the EA and its Decision should be revisited and, if appropriate, revised, or if a Notice of Intent to prepare an EIS should be issued.

Copies of the EA are available upon request from the North Carolina Wildlife Services Office, 6213-E Angus Drive, Raleigh, North Carolina 27617.

Robert Hudson, Acting Regional Director
APHIS-WS Eastern Region

3/27/07
Date

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Appendix A

Table 1. Cooperator reported monetary damage by resource caused by aquatic rodent damage during federal FY 2001-2006 (USDA-WS MIS, unpublished data, 2007).

Resources	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	TOTAL
Timber	373,815	1,685,218	3,748,423	3,721,174	6,958,226	4,846,007	21,332,863
Natural Resources (Watershed, etc)	0	62,000	162,900	487,450	452,330	409,737	1,574,417
Field Crops	1,500	208,753	115,506	122,405	155,726	183,263	787,153
Commercial Nursery Plants	0	0	1,000	0	8,000	88,500	97,500
Fruit/Nut Trees	0	1,000	9,200	0	1,500	0	11,700
Pasture/Hayfield	800	0	3,200	8,000	6,600	11,400	30,000
Dams/Impoundments	0	8,000	45,725	45,500	118,600	495,800	713,625
Irrigation/Drainage	0	17,100	87,500	45,600	54,736	143,650	348,586
Fences	0	0	0	0	5,000	0	5,000
Turf/Landscape/Garden	6,500	3,200	13,100	5,950	17,800	8,000	54,550
Roads/Bridges	44,790	214,796	583,582	855,800	443,826	1,111,880	3,254,674
Railroad/Trestles	0	0	75,000	0	5,000	1,200	81,200
Utilities	0	1,000	4,000	203,000	11,500	91,400	310,900
Equipment	0	400	0	0	0	0	400
General Property	14,000	15,300	33,000	4,300	12,000	155,850	234,450
Residential Buildings	1,200	0	0	0	1,000	77,000	79,200
Non-residential Buildings	0	3,000	0	1,000	8,000	5,000	17,000
Human Health & Safety	0	0	0	0	10,000	6,200	16,200
Recreational Areas	0	0	0	0	0	1,000	1,000
Golf Course	0	0	0	0	0	2,000	2,000
Swimming Pools	0	0	0	0	0	10,000	10,000
Waste Treatment Plant	0	0	60,000	0	0	0	60,000
Pond	0	7,000	10,000	10,000	18,500	0	45,500
Water Riser	0	0	0	0	0	11,000	11,000
Waterfowl Preserve	0	0	0	0	0	50,000	50,000
Flooding	0	0	2,000	0	0	0	2,000
TOTALS	**442,605**	**2,226,767**	**4,954,136**	**5,510,179**	**8,288,344**	**7,708,887**	**29,130,918**